

DEPARTMENT of ENVIRONMENTAL SERVICES
Water Division - Watershed Management Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake: CLOUGH POND	Lake Area (ha): 18.53
Town: LOUDON	Maximum depth (m): 18.2
County: Merrimack	Mean depth (m): 5.9
River Basin: Merrimack	Volume (m ³): 1045000
Latitude: 43°19'20" N	Relative depth: 3.8
Longitude: 71°29'50" W	Shore configuration: 1.07
Elevation (ft): 466	Areal water load (m/yr): 2.40
Shore length (m): 1600	Flushing rate (yr ⁻¹): 0.40
Watershed area (ha): 93.2	P retention coeff.: 0.78
% watershed ponded: 1.6	Lake type: natural w/dam

BIOLOGICAL:

6 February 2003

20 June 2002

DOM. PHYTOPLANKTON (% TOTAL)	#1	ASTERIONELLA 50%	ASTERIONELLA 40%
	#2	TABELLARIA 35%	DINOBRYON 20%
	#3	MALLOMONAS 10%	TABELLARIA 15%
PHYTOPLANKTON ABUNDANCE (units/mL)			
CHLOROPHYLL-A (µg/L)			4.20
DOM. ZOOPLANKTON (% TOTAL)	#1	NAUPLIUS LARVA 37%	KELICOTTIA 19%
	#2	KERATELLA 17%	NAUPLIUS LARVA 18%
	#3	KELICOTTIA 15%	BOSMINA 17%
ROTIFERS/LITER		47	158
MICROCRUSTACEA/LITER		53	206
ZOOPLANKTON ABUNDANCE (#/L)		101	368
VASCULAR PLANT ABUNDANCE			Sparse
SECCHI DISK TRANSPARENCY (m)			3.5
BOTTOM DISSOLVED OXYGEN (mg/L)		0.0	0.2
BACTERIA (E. coli, #/100 ml)	#1		1
	#2		< 1
	#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m): 5.5
Hypolimnion volume (m³): 171000
Anoxic volume (m³): 58000

CHEMICAL:

Lake: CLOUGH POND
Town: LOUDON

	6 February 2003		20 June 2002		
DEPTH (m)	6.0	12.0	2.0	8.0	15.0
pH (units)	6.3	6.2	6.8	6.4	6.1
A.N.C. (Alkalinity)	7.0	7.5	5.3	7.0	10.9
NITRATE NITROGEN	< 0.05	< 0.05	< 0.05		< 0.05
TOTAL KJELDAHL NITROGEN	0.30	0.40	0.50	0.50	0.90
TOTAL PHOSPHORUS	0.008	0.015	0.016	0.018	0.030
CONDUCTIVITY (μ mhos/cm)	66.0	69.3	55.7	53.5	59.5
APPARENT COLOR (cpu)	9	18	15	15	20
MAGNESIUM			0.96		
CALCIUM			2.7		
SODIUM			6.8		
POTASSIUM			0.79		
CHLORIDE	10	11	10		9
SULFATE	4	4	4		4
TN : TP	38	27	31		30
CALCITE SATURATION INDEX			3.3		

All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 2002

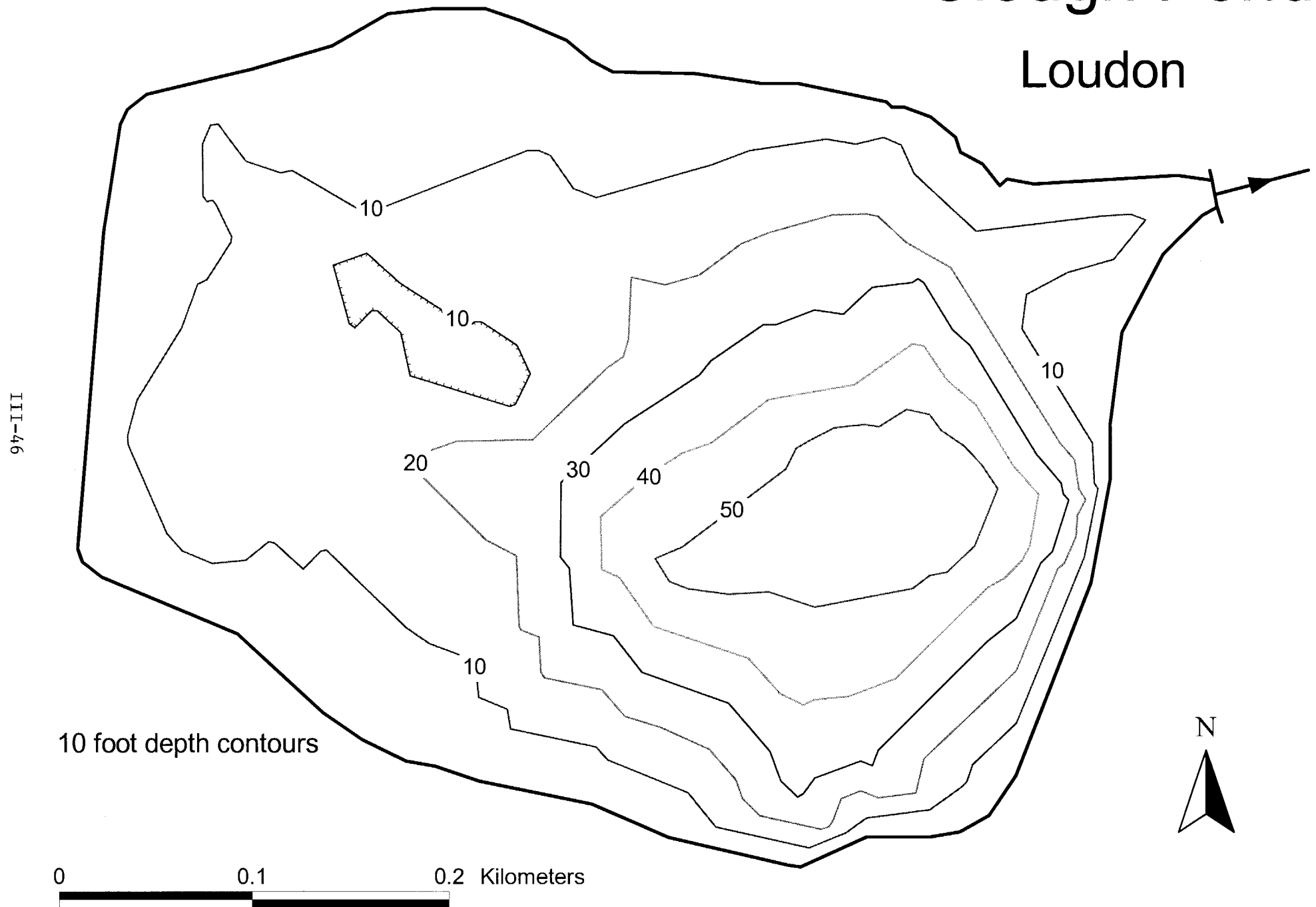
D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
6	2	0	1	9	Meso.

COMMENTS:

1. Previously surveyed in 1983. There was no change in class and little change in trophic data between the two dates.
2. Essentially no dissolved oxygen (DO) was present below 13 meters in the summer and at the bottom in the winter. Depletion of bottom DO in summer in stratified lakes is not unusual, but very few ponds of this depth become anoxic in winter. This phenomenon also occurred in 1983 and suggests that the relatively small deep hole contains organic muck with a high oxygen demand.
3. Boat access was via an improved Fish & Game launch site near the outlet.
4. Most of the shoreline was developed.
5. Good variety of zooplankton -- no strong dominant.

Clough Pond

Loudon



FIELD DATA SHEET				
LAKE: CLOUGH POND DATE: 06/20/2002		TOWN: LOUDON WEATHER: Sunny, warm & calm		
	DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
	0.1	21.2	9.2	103 %
	1.0	20.5	9.3	102 %
	2.0	19.8	9.5	101 %
	3.0	18.8	9.7	101 %
	4.0	18.1	10.0	106 %
	5.0	15.7	10.7	105 %
	6.0	12.7	12.4	114 %
	7.0	10.5	12.6	110 %
	8.0	8.5	8.4	71 %
	9.0	7.1	5.3	43 %
	10.0	6.3	4.4	35 %
	11.0	5.9	3.1	25 %
	12.0	5.7	1.1	9 %
	13.0	5.6	0.5	4 %
	14.0	5.5	0.1	1 %
	15.0	5.5	0.1	1 %
	16.0	5.4	0.1	1 %
	17.0	5.4	0.1	1 %
	17.5	5.4	0.2	2 %
SECCHI DISK (m): 3.5		COMMENTS:		
BOTTOM DEPTH (m): 17.8		No D.O. below 13 meters.		
TIME: 1035				
*Dissolved oxygen values are in mg/L				

TOWN: LOUDON
WEATHER: Sunny, warm & calm

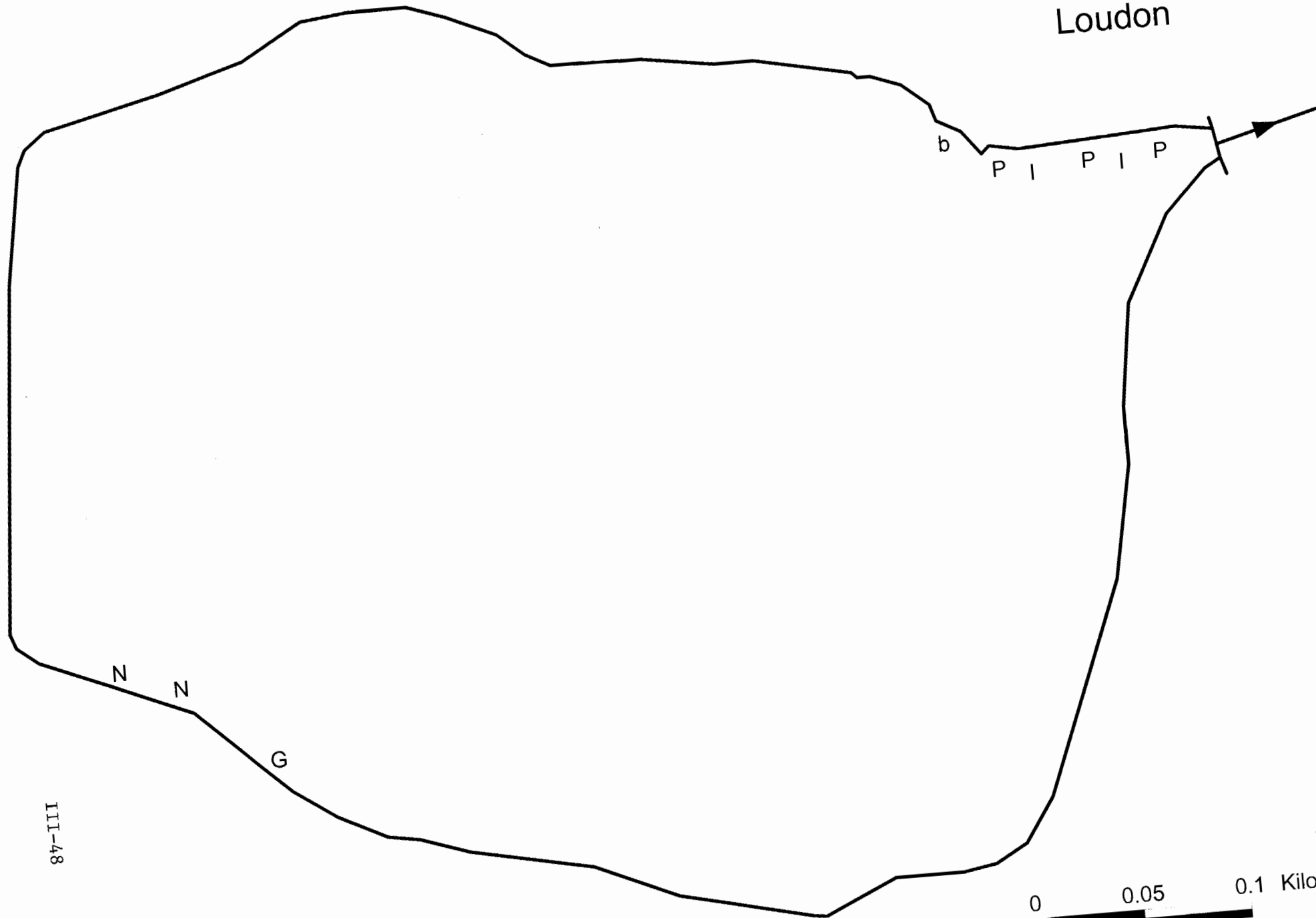
[illegible]

COMMENTS: No D.O. below 13 meters.

*Dissolved oxygen values are in mg/L

Clough Pond

Loudon



0 0.05 0.1 Kilometers

[illegible]

OVERALL ABUNDANCE: Sparse	
<u>GENERAL OBSERVATIONS:</u> 1. A town beach for Loudon residents was present.	

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